

WHAT IS CLAIMED IS:**CLAIM 1.** A light source comprising:

an elongate thermally conductive member having an outer surface;
at least one solid state light source carried on said elongate member outer surface;
one or more electrical conductors carried by said elongate thermally conductive member and connected to said at least one solid state light source to supply electrical power thereto; and
said elongate thermally conductive member being configured to conduct heat away from said at least one solid state light source to fluid contained by said elongate thermally conductive member.

CLAIM 2. A light source comprising:

an elongate thermally conductive member having an outer surface;
a plurality of solid state light sources carried on said elongate member outer surface at least some of said solid state light sources being disposed in a first plane and others of said solid state light sources being disposed in a second plane not coextensive with said first plane;
electrical conductors carried by said elongate thermally conductive member and connected to said plurality of solid state light sources to supply electrical power thereto; and
said elongate thermally conductive member being configured to conduct heat away from said solid state light sources to fluid contained by said elongate thermally conductive member.

CLAIM 3. A light source in accordance with claim 2, wherein:

said fluid comprises air.

CLAIM 4. A light source in accordance with claim 3, wherein:

said elongate thermally conductive member comprises one or more heat dissipation protrusions.

CLAIM 5. A light source in accordance with claim 2, wherein:

said elongate thermally conductive member comprises a tube.

CLAIM 6. A light source in accordance with claim 5, wherein:

said tube has a cross-section in the shape of a polygon.

CLAIM 7. A light source in accordance with claim 5, wherein:

said tube has a cross-section having flat portions.

CLAIM 8. A light source in accordance with claim 2, wherein:

said elongate thermally conductive member comprises a channel.

CLAIM 9. A light source in accordance with claim 2, wherein:

said elongate thermally conductive member comprises an extrusion.

CLAIM 10. A light source in accordance with claim 9, wherein:

said extrusion is an aluminum extrusion.

CLAIM 11. A light source in accordance with claim 10, wherein:

said elongate thermally conductive member is a tubular member.

CLAIM 12. A light source in accordance with claim 11, wherein:

said tubular member has a polygon cross-section.

CLAIM 13. A light source in accordance with claim 11, wherein:

said tubular member has a triangular cross-section.

CLAIM 14. A light source in accordance with claim 2, comprising:

a flexible circuit carried on a surface of said elongate thermally conductive member, said flexible circuit comprising said electrical conductors.

CLAIM 15. A light source in accordance with claim 14, wherein:

said flexible circuit comprises a plurality of apertures for receiving said plurality of light emitting diodes.

CLAIM 16. A light source in accordance with claim 15, wherein:

each of said solid state light sources is disposed in a corresponding one of said apertures and affixed in thermally conductive contact with said elongate thermally conductive member.

CLAIM 17. A light source in accordance with claim 2, wherein:

a thermal transfer media disposed therein.

CLAIM 18. A light source in accordance with claim 17, wherein:

said elongate thermally conductive member comprises a flow channel for said thermal transfer media.

CLAIM 19. A light source in accordance with claim 2, comprising:

at least one clip for mounting said elongate thermally conductive member in a fixture.

CLAIM 20. A light source in accordance with claim 2, comprising:

an electrically insulating layer disposed on said elongate thermally conductive member outer surface and carrying said electrical conductors thereon.

CLAIM 21. A light source in accordance with claim 20, wherein:

said electrically insulating layer comprises a plurality of apertures, each aperture receiving one of said solid state light sources; and

each solid state light source of said plurality of solid state light sources being mounted in a corresponding one of said apertures and in thermally conductive contact with said elongate thermally conductive member.

CLAIM 22. A radiation emitting source comprising:

an elongate thermally conductive member having an outer surface;

at least one radiation emitting semiconductor device carried on said elongate member outer surface;

one or more electrical conductors carried by said elongate thermally conductive member and connected to said at least one radiation emitting semiconductor device to supply electrical power thereto; and

said elongate thermally conductive member being configured to conduct heat away from said at least one radiation emitting semiconductor device to fluid contained by said elongate thermally conductive member.

CLAIM 23. A radiation emitting source comprising:

an elongate thermally conductive member having an outer surface;

a plurality of radiation emitting semiconductor devices carried on said elongate member outer surface at least some of said radiation emitting semiconductor devices being disposed in a first plane and others of said radiation emitting semiconductor devices being disposed in a second plane not coextensive with said first plane;

electrical conductors carried by said elongate thermally conductive member and connected to said plurality of light emitting diodes to supply electrical power thereto; and

said elongate thermally conductive member being configured to conduct heat away from said radiation emitting semiconductor devices to fluid contained by said elongate thermally conductive member.

CLAIM 24. A radiation emitting source in accordance with claim 23, wherein:
said fluid comprises air.

CLAIM 25. A radiation emitting source in accordance with claim 24, wherein:
said elongate thermally conductive member comprises one or more heat dissipation protrusions.

CLAIM 26. A radiation emitting source in accordance with claim 23, wherein:
said elongate thermally conductive member comprises a tube.

CLAIM 27. A radiation emitting source in accordance with claim 26, wherein:
said tube has a cross-section in the shape of a polygon.

CLAIM 28. A radiation emitting source in accordance with claim 26, wherein:
said tube has a cross-section having flat portions.

CLAIM 29. A radiation emitting source in accordance with claim 23, wherein:
said elongate thermally conductive member comprises a channel.

CLAIM 30. A radiation source in accordance with claim 23, wherein:

said elongate thermally conductive member comprises an extrusion.

CLAIM 31. A radiation emitting source in accordance with claim 30, wherein:

said extrusion is an aluminum extrusion.

CLAIM 32. A radiation emitting source in accordance with claim 31, wherein:

said elongate thermally conductive member is a tubular member.

CLAIM 33. A radiation emitting source in accordance with claim 32, wherein:

said tubular member has a polygon cross-section.

CLAIM 34. A radiation emitting source in accordance with claim 32, wherein:

said tubular member has a triangular cross-section.

CLAIM 35. A radiation emitting source in accordance with claim 23, comprising:

a flexible circuit carried on a surface of said elongate thermally conductive member, said flexible circuit comprising said electrical conductors.

CLAIM 36. A radiation source in accordance with claim 35, wherein:

said flexible circuit comprises a plurality of apertures for receiving said plurality of light emitting diodes.

CLAIM 37. A radiation source in accordance with claim 36, wherein:

each of said radiation emitting semiconductor devices is disposed in a corresponding one of said apertures and affixed in thermally conductive contact with said elongate thermally conductive member.

CLAIM 38. A radiation emitting source in accordance with claim 23, wherein:

a thermal transfer media disposed therein.

CLAIM 39. A radiation source in accordance with claim 38, wherein:

said elongate thermally conductive member comprises a flow channel for said thermal transfer media.

CLAIM 40. A radiation emitting source in accordance with claim 23, comprising:

at least one clip for mounting said elongate thermally conductive member in a fixture.

CLAIM 41. A radiation emitting source in accordance with claim 23, comprising:

an electrically insulating layer disposed on said elongate thermally conductive member outer surface and carrying said electrical conductors thereon.

CLAIM 42. A radiation emitting source in accordance with claim 41, wherein:

said electrically insulating layer comprises a plurality of apertures, each aperture receiving one of said radiation emitting semiconductor devices; and

each radiation emitting semiconductor device of said plurality of radiation emitting semiconductor devices being mounted in a corresponding one of said apertures and in thermally conductive contact with said elongate thermally conductive member.

CLAIM 43. A radiation emitting source comprising:

an elongate thermally conductive member having an outer surface;

at least one radiation emitting solid state device carried on said elongate member outer surface;

one or more electrical conductors carried by said elongate thermally conductive member and connected to said at least one radiation emitting solid state device to supply electrical power thereto; and

said elongate thermally conductive member being configured to conduct heat away from said at least one radiation emitting solid state device to fluid contained by said elongate thermally conductive member.

CLAIM 44. A radiation emitting source comprising:

an elongate thermally conductive member having an outer surface;

a plurality of radiation emitting solid state devices carried on said elongate member outer surface at least some of said radiation emitting solid state devices being disposed in a first plane and others of said radiation emitting solid state devices being disposed in a second plane not coextensive with said first plane;

electrical conductors carried by said elongate thermally conductive member and connected to said plurality of light emitting diodes to supply electrical power thereto; and

said elongate thermally conductive member being configured to conduct heat away from said radiation emitting solid state devices to fluid contained by said elongate thermally conductive member.

CLAIM 45. A radiation emitting source in accordance with claim 44, wherein:
said fluid comprises air.

CLAIM 46. A radiation emitting source in accordance with claim 45, wherein:
said elongate thermally conductive member comprises one or more heat dissipation protrusions.

CLAIM 47. A radiation emitting source in accordance with claim 44, wherein:
said elongate thermally conductive member comprises a tube.

CLAIM 48. A radiation emitting source in accordance with claim 47, wherein:
said tube has a cross-section in the shape of a polygon.

CLAIM 49. A radiation emitting source in accordance with claim 47, wherein:
said tube has a cross-section having flat portions.

CLAIM 50. A radiation emitting source in accordance with claim 44, wherein:
said elongate thermally conductive member comprises a channel.

CLAIM 51. A radiation emitting source in accordance with claim 44, wherein:
said elongate thermally conductive member comprises an extrusion.

CLAIM 52. A radiation emitting source in accordance with claim 51, wherein:
said extrusion is an aluminum extrusion.

CLAIM 53. A radiation emitting source in accordance with claim 52, wherein:
said elongate thermally conductive member is a tubular member.

CLAIM 54. A radiation emitting source in accordance with claim 53, wherein:
said tubular member has a polygon cross-section.

CLAIM 55. A radiation emitting source in accordance with claim 53, wherein:
said tubular member has a triangular cross-section.

CLAIM 56. A radiation emitting source in accordance with claim 54, comprising:
a flexible circuit carried on a surface of said elongate thermally conductive member, said flexible circuit comprising said electrical conductors.

CLAIM 57. A radiation source in accordance with claim 56, wherein:
said flexible circuit comprises a plurality of apertures for receiving said plurality of light emitting diodes.

CLAIM 58. A radiation source in accordance with claim 57, wherein:

each of said radiation emitting solid state devices is disposed in a corresponding one of said apertures and affixed in thermally conductive contact with said elongate thermally conductive member.

CLAIM 59. A radiation emitting source in accordance with claim 44, wherein:

a thermal transfer media disposed therein.

CLAIM 60. A radiation emitting source in accordance with claim 59, wherein:

said elongate thermally conductive member comprises a flow channel for said thermal transfer media.

CLAIM 61. A radiation emitting source in accordance with claim 44, comprising:

at least one clip for mounting said elongate thermally conductive member in a fixture.

CLAIM 62. A radiation emitting source in accordance with claim 44, comprising:

an electrically insulating layer disposed on said elongate thermally conductive member outer surface and carrying said electrical conductors thereon.

CLAIM 63. A radiation emitting source in accordance with claim 62, wherein:

said electrically insulating layer comprises a plurality of apertures, each aperture receiving one of said radiation emitting solid state devices; and

each radiation emitting solid state device of said plurality of radiation emitting solid state devices being mounted in a corresponding one of said apertures and in thermally conductive contact with said elongate thermally conductive member.